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OF
THE STATE HISTORICAL AND
NATURAL HISTORY SOCIETY
COLORADO

1907-1908

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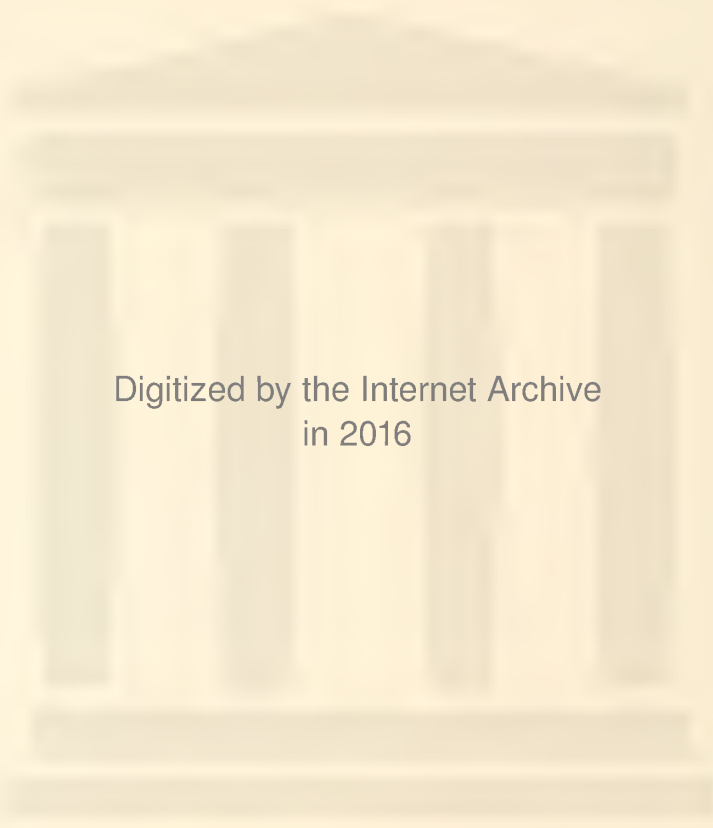
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Biennial Report
OF
The
State Historical and
Natural History
Society
OF
COLORADO.

December 1, 1906, to November 30, 1908.



OFFICERS OF THE STATE HISTORICAL AND NATURAL
HISTORY SOCIETY OF COLORADO.

President	Edward B. Morgan.
Vice-Presidents.....	{ Nathan A. Baker.
	{ George L. Cannon.
Secretary.....	Charles R. Dudley.
Treasurer.....	William D. Todd.
Curator.....	William C. Ferril.
Museum Assistant.....	Horace G. Smith.
Newspaper File Clerk.....	James F. C. Boyd.

DIRECTORS.

Nathan A. Baker,	Granville Malcom,	
George L. Cannon,	William S. Ward,	Edward B. Morgan.
Charles R. Dudley,	Robert S. Roeschlaub,	
Aaron Gove,	William D. Todd.	

LETTER OF TRANSMITTAL.

Denver, Colorado, December 1, 1908.

To His Excellency,

HENRY A. BUCHTEL,

Governor of the State of Colorado.

Sir—I have the honor to submit herewith, the report of
The State Historical and Natural History Society of Colorado,
for the biennial term ended November 30, 1908.

E. B. MORGAN,

President.

BIENNIAL REPORT

OF

The State Historical and Natural History Society of Colorado

December 1, 1906, to November 30, 1908.

REPORT OF THE CURATOR.

Denver, Colorado, December 1, 1908.

To the President and Directors of The State Historical and Natural History Society of Colorado.

Gentlemen—I have the honor to submit herewith my report as Curator of The State Historical and Natural History Society of Colorado, for the biennial term, December 1, 1906, to November 30, 1908.

DAYS OPEN AND ATTENDANCE.

Fiscal Year, December 1, 1906, to November 30, 1907.

Year. 1906.	Days open.	Attendance.
December 1907.	25	6,645
January	26	10,838
February	22	9,357
March	26	10,283
April	25	8,322
May	26	8,852
June	25	7,423
July	26	9,503
August	27	17,598
September	24	19,680
October	26	8,985
November	25	7,652
Total	303	125,148

BIENNIAL REPORT STATE HISTORICAL

Fiscal Year, December 1, 1907 to November 30, 1908.

Year, 1907.	Days Open.	Attendance.
December	25	7,337
1908.		
January	26	10,849
February	23	7,236
March	26	8,787
April	25	8,492
May	25	8,991
June	25	9,882
July	26	27,629
August	25	15,091
September	25	12,369
October	26	10,383
November	23	6,035
Total	300	133,081

SUMMARY.

Fiscal Years.	Days Open.	Attendance.
December 1, 1906, to November 30, 1907.....	303	125,148
December 1, 1907, to November 30, 1908.....	300	133,081
Total for biennial term.....	603	258,229

ADDITIONS DURING THE BIENNIAL TERM, DECEMBER 1, 1906—NOVEMBER 30, 1908.

The following additions were made to the library, and general historical and scientific collections of the Society, during the biennial term, December 1, 1906, to November 30, 1908:

Pamphlets	3,056
Books	1,274
Newspaper files beginning.....	37
Bound volumes of newspapers.....	82
Magazine files beginning.....	11
Special magazines.....	232
Maps	5
Manuscripts	3,421
Pictures	53
Historical collections.....	8
Coins	1
*Ethnology	22

*A collection of 96 articles from the ruins of the Cliff Dwellers, jointly purchased with the University of Colorado; and also, the collection obtained during the summer of 1908, by Prof. Edgar L. Hewett for the Society and the University of Colorado, from the Cliff Dweller region in southwestern Colorado, have not yet been divided between these two institutions; and hence, have not been accessioned and counted in the foregoing list for Ethnology, but they are stored in the rooms of this Society at the State House.

Mammals—

Skins with skulls.....	19
Skulls without skins.....	3
Teeth (Bison)	3

25

Birds—

Mounted	19
Skins	274
Eggs	701
Nests	24

Bones—

Skulls	8
Sterna	2

10

1,028

Reptiles and Batrachians—

Frogs	5
Snakes	10
Lizards	19
Turtles	2
Turtle eggs	15

17

Land tortoise	1
Toad	1
Salamander	1
Batrachians (miscellaneous)	4

58

Fish—

Fish	39
Cartilaginous fish eggs.....	3

42

Insects 376

Spiders 14

Centipedes 6

Millipedes 5

Marine and Fresh Water Invertebrates—

Mollusca	467
Crustaceans	3
Echinoderms	1
Miscellaneous	23

494

Botany 1,006

Geology—

Minerals	1	
Paleontology—		
Tooth	1	
Palm wood	3	
Bivalve	1	
Bone fragments	3	
Vertebra	1	
Dinosaur—a part (in fragments).....	1	
Shells	40	
	—	50
Corals	18	
		69
Total		12,325

TOPICAL SUMMARY.

The State Historical and Natural History Society of Colorado, as shown both by its name and articles of incorporation, having been organized for historical and scientific purposes, the foregoing additions may be summarized for the biennial term by topic as follows:

HISTORICAL AND LIBRARY.

Pamphlets	3,056	
Books	1,274	
Newspaper files beginning.....	37	
Bound volumes of newspapers.....	82	
Magazine files beginning.....	11	
Special magazines	232	
Maps	5	
Manuscripts	3,421	
Pictures	53	
Historical collections	8	
Coins	1	
Ethnology	22	
Total		8,202

SCIENTIFIC.

Mammals	25
Birds	293
Birds' eggs	701
Birds' nests	24
Birds' skulls	8
Birds' sterna	2
Reptiles and batrachians	58
Fish	42
Insects	376
Arachnida	14
Myriapoda	11
Marine and fresh water invertebrates	494
Botany	2,006
Geology	69
Total	4,123

SUMMARY FOR BIENNIAL TERM.

Historical and library	8,202
Scientific	4,123
Total	12,325

SUMMARY OF ADDITIONS FOR TEN YEARS.

The following is a summary of the additions that have been made during the past ten years:

HISTORICAL AND LIBRARY.

Biennial Terms.	Additions.
December 1, 1898-November 30, 1900	6,462
December 1, 1900-November 30, 1902	2,255
December 1, 1902-November 30, 1904	7,477
December 1, 1904-November 30, 1906	10,137
December 1, 1906-November 30, 1908	8,202
Total	34,533

SCIENTIFIC.

Biennial Terms.	Additions.
December 1, 1898-November 30, 1900	3,925
December 1, 1900-November 30, 1902	7,526
December 1, 1902-November 30, 1904	10,171
December 1, 1904-November 30, 1906	13,907
December 1, 1906-November 30, 1908	4,123
Total	39,652

SUMMARY.

Historical and library	34,533	
Scientific	<u>39,652</u>	
Total		74,185
Total additions for past ten years.....	74,185	
Total additions from August 14, 1896, to November 30, 1898 (estimated)	5,000	
Total additions from beginning to August 14, 1896 (estimated).....	<u>5,000</u>	
Grand total of collections.....		84,185

Since my appointment as Curator, August 14, 1896, the total additions to the library, historical and scientific collections and museum, have been 79,185. Estimating the total collections August 14, 1896, at 5,000, the grand total of all the property of the Society, not including furniture, is 84,185.

ATTENDANCE.

The attendance for the biennial term just ended was 258,229, and the rooms were open to the public on 603 separate days. The number of visitors from the city and state, seems to show a steady increase, and there are many tourists during the summer. Although there have been held in Denver some very notable national conventions and gatherings during the past two years, there was only one that was unusual in the list of visitors. This was during the month of July, 1908, when the attendance was 27,629, the largest record for any one month during the biennial term, this heavy increase having been the result of the large attendance at the National Democratic convention held in this city. September, 1905, still remains the the banner month, when 66,161 visitors passed through our rooms, at the time of the national encampment of the Grand Army of the Republic. While the summer attendance will vary, owing to the events which may attract large crowds of people to this city, yet there appears to be a regular increase in the number of Colorado visitors. Many who come, take notes from the labels in the museum, and especially teachers, students and those seeking information. More of the time of the Curator and his assistants is now occupied than formally, in answering the questions of those seeking historical and scientific data. The public now realizes that the collections of this Society are not simply for the pleasure of "sight-seeing," but are also of practical use as they should be and were intended, and hence the heavy and increased demand made upon the Society and the time of its officers. We are pleased to bear witness to this fact, for the interest shown and encouragement given by the general public, but emphasize the position of the Society as a State institution, filling its own place, in assisting to meet the demands made upon it. This Society has a field peculiar to itself, in his

torical and scientific research, and efficient work is expected, with liberal appropriations by the Legislature, to carry it on.

NEARLY 1,500,000 VISITORS.

The rooms of the Society were first regularly opened to the public, in the State House, August 14, 1896, at the time of my first appointment as Curator. Since that date, the collections of the Society have been opened to visitors and for reference on 3,700 separate days, and the attendance during that time has been 1,490,084, as shown by the following record:

Year.	Days Open.	Attendance.
August 14, 1896, to December 31, 1896.....	117	10,587
January 1, 1897, to December 31, 1897.....	303	52,766
January 1, 1898, to November 30, 1898.....	259	68,559
Biennial term, December 1, 1898-November 30, 1900.....	610	228,863
Biennial term, December 1, 1900-November 30, 1902.....	595	294,983
Biennial term, December 1, 1902-November 30, 1904.....	606	274,832
Biennial term, December 1, 1904-November 30, 1906.....	607	301,265
Biennial term, December 1, 1906-November 30, 1908.....	603	258,229
Total	3,700	1,490,084

PUBLICATIONS.

The following publications were issued by the Society during the biennial term:

Documents.	No. Copies.
Biennial report of The State Historical and Natural History Society of Colorado for the biennial term, December 1, 1904-November 30, 1906.....	500

The biennial report of the Colorado Academy of Science for the same period, was also published in the foregoing report.

MISCELLANEOUS.

Letters written	4,113
Letters received (not including circulars).....	1,010
Consulted library	3,596

Educational—Lectures in museum of society by Curator to twenty-five classes, numbering 795 pupils, accompanied by twenty-five teachers; total teachers and pupils, 820.

Humane Education—Lectures on humane education by Curator, in public schools, to classes, the pupils numbering 725.

Educational—Miscellaneous—Occasional lectures by Prof. George L. Cannon and Prof. Ellsworth Bethel.

Educational—Class Visitors—Many teachers accompany their classes through museum, the pupils taking notes, without a formal lecture by Curator, but frequently conducted by him as guide through rooms of society.

EDUCATIONAL.

In its practical workings, this Society is one of the educational institutions of the State, in addition to its general historical and scientific scope. Teachers are accustomed to schedule dates for their classes from the schools, and lectures are given them by the Curator in the museum of the Society in the State House, his services being free of charge, for this work. Lectures were given by the Curator on scientific and historical subjects to 25 classes, numbering 795 pupils, accompanied by 25 teachers, making a total of 820 pupils and teachers. The increase of the work of this Society, and the small amount appropriated for our expense account, has caused the Curator to refuse dates for some classes, for want of time.

The following is the record of this educational work by the Curator, since his first appointment to this office, in his lectures to classes in the museum at the State House, mostly from the public schools, but some from private institutions, the pupils making drawings, and also taking notes on the points as explained to them.

LECTURES BY THE CURATOR.

Year.	Classes.	Teachers.	Pupils.
Biennial term, December 1, 1906, to November 30, 1908	25	25	795
Former years	288	340	11,061
Total	313	365	11,856

This table shows a total of 313 classes and 11,856 pupils, accompanied by 365 teachers, to whom the Curator has given lectures in the museum of the Society on historical and scientific subjects, or a grand total of 12,221 pupils and teachers. This record does not include the thousands of pupils and students who come to the rooms of the Society for study and original research, who are aided in their investigations by the Curator and his assistants. Teachers from different parts of the State frequently visit our museum to obtain data to be used in their schools elsewhere. In addition to lectures in the museum at the State House, the Curator has lectured on humane education to classes in the public schools, the pupils in these several classes numbering 725, which, added to the foregoing total of 12,221, gives a grand total of 12,946.

THE LIBRARY.

The library, in books, pamphlets, newspaper files and other additions thereto belonging, now numbers a collection of about 30,000. The general library is in the sub-basement and is connected directly with the museum above, with an iron stairway. The greater part of our space in the sub-basement is occupied by the library, which, in addition to books and pamphlets, contains many newspaper files.

THE EDWARD B. MORGAN COLLECTION.

Valuable additions have been made to the Edward B. Morgan Collection, which consists of books, pamphlets, maps and other documents relating to Colorado, either in subject-matter or by authorship. This invaluable collection, occupies what is commonly known as the "Morgan" room, adjoining the museum. During the biennial term, 143 books and pamphlets and 153 special magazines, making a total of 296 documents, have been purchased for this collection, thus increasing its already great value as a special reference library relating to Colorado and those important links of western history with which this State is connected. It is a rare and comprehensive list, frequently consulted for ready reference, but most appreciated by those engaged in original research. Mr. Morgan gives this collection his special care and closely keeps note of all sales of rare documents, to add to this list.

NEWSPAPER FILES.

The newspaper files are in charge of Mr. James F. C. Boyd.

There have been added 82 bound volumes of newspapers, making a total of 947 bound volumes of Colorado newspapers. Owing to the small expense appropriation for the Society made by the Legislature, but few files could be bound. With the donation of occasional volumes and those bound by the Society, the total now reaches almost a thousand. Both these and the unbound files are frequently consulted, not only for ready reference and historical data, but also by attorneys to examine legal notices. These files are also frequently examined by those making inquiries on the material resources of the State and collecting data relating thereto, and especially in the large editions and special write-ups, with which editors and publishers make known the attractive features of their part of the State. The collection of files of Colorado newspapers is made as complete as possible and any who may not be donating their publications are requested to place the name of this Society on their complimentary list. It is unfortunate that large appropriations have not been made to bind these files. Some leading dailies from other states are also received, thus preserving our own with the links of national interest.

Our most valuable files of pioneer history consist of the Rocky Mountain News, from 1859 to 1878, the gift of the late President of the Society, the Hon. William N. Byers. A valuable addition, worthy of special mention, was the donation recently made by Mrs. O. J. Hollister, of five bound volumes of early Colorado newspapers, with which her husband, prominent as a journalist and historian, was connected. This gift of Mrs. Hollister consists of the following:

Daily Mining Journal, Black Hawk, Colorado, in three volumes as follows:

Volume 1—November 30, 1863, to November 29, 1864.

Volume 2—November 30, 1864, to November 29, 1865.

Volume 3—November 30, 1865, to December 1, 1866.

Rocky Mountain News (Weekly), May 6, 1868, to December 2, 1868.

Herald (Denver), Republican (Denver), Commonwealth (Denver), Mines Register (Central City), these four named paper files being bound in one volume, with following dates: Rocky Mountain Herald, Denver (Weekly), May 5, 1860, to December 22, 1860; Weekly Colorado Republican and Rocky Mountain Herald, Denver City, May 25, 1861, to June 26, 1862; Weekly Commonwealth and Republican, Denver City, July 10, 1862, to August 20, 1863; Weekly Commonwealth, Denver City, August 27, 1863, to December 30, 1863; Weekly Mines Register, Central City, November 5, 1867, to January 28, 1868.

These volumes are replete with valuable data on the pioneer history of Colorado, and the thoughtful and graceful act of Mrs. Hollister in making this donation, is greatly appreciated by the Society.

Although the Society does not possess complete, some of the early files from the beginning, yet in the combination of its several files, the Society has a newspaper history of the State in some form, from 1859 to the present time.

MANUSCRIPTS.

There have been added 3,421 manuscripts. These consist mostly of original mining location certificates, 1859 and early sixties, together with other original documents, some bearing date of 1858. The mining location certificates vary in form and style. Some are filled out in several kinds of blank printed devices, with pictures emblematic of western life. Others are all in written form, but from them all, the students of our pioneer period may learn from these original documents, the manner and form of obtaining title to mining property in the early days of Colorado, and filing the same for record. Among other valuable manuscripts are some of the court processes and papers served by constables, and other interesting documents. These papers all preserve the autographs of many of our Colorado pioneers. They are nearly all written in ink, but the occasional one written even with a lead pencil, is quite clear and distinct. Some are well preserved, others not so perfectly, but all have been filed in the vaults of the Society as original and interesting data relating to pioneer mining days of Colorado.

COLORADO HISTORY.

In a preliminary way the Curator has begun the work of making an historical investigation of the early and original

records of the several counties of the State. While thus engaged he obtained possession of the manuscripts to which reference has just been made. All special and new year editions of newspapers as far as possible, together with pamphlets relating to the State or cities, towns, counties or the history and resources thereof, are collected. These are arranged by counties or topic, thus made more available for ready reference. The general library, together with the comprehensive list in the Edward B. Morgan Collection, files of newspapers, manuscripts, maps, photographs and other memorabilia, together with relics of the pioneer era—all combined, are laying the foundation for preserving the history of Colorado. Mr. Edward B. Morgan and Mr. Charles R. Dudley, President and Secretary of the Society, obtained some valuable photographs and relics from the estate of the late Captain E. L. Berthoud, of Golden, who for many years was an honored member of this Society.

The weakest phase of the work is the lack of dictations of Colorado pioneers and the builders of this State, in which should be preserved historical sketches of their lives, together with reminiscences of the principal historical events of this region. A stenographer is needed for this purpose, and we trust that an appeal to the Legislature for such aid will not be unavailing.

HISTORICAL AND SCIENTIFIC PUBLICATIONS.

Another important need of the Society is an appropriation with which to publish historical and scientific manuscripts. In the report of the Colorado Academy of Science, herewith filed and made a part of this document, the necessity of publishing scientific reports is duly emphasized and reference thereto is hereby made. Not only for the purpose of preserving and making known the history of Colorado, but also that the Society may obtain similar documents from other historical Societies in exchange, is a most urgent reason for an appropriation therefor. For the lack of funds Colorado is far behind some of the other western states in the publication of historical reports and documents. The Pike centennial and the more recent semi-centennial of the founding of Denver, the marking of the old Santa Fe trail in this State by the Daughters of the American Revolution, and other events, are awakening the true historical interest in Colorado, and the general public is manifesting a pride that is most praiseworthy in encouraging the collection and preservation of the early records of this State and the publication of the same. The historic spirit has been aroused. Encourage and push it along. More and more this Society is sought for such historical data, and the Legislature should liberally assist this department in meeting these demands made upon it.

THE MUSEUM.

No special change has been made in the museum since the last report in the general placing of exhibits, except that more care has been taken in their systematic arrangement, so as to give them more excellence and greater utility in appearance, and increasing the labels in both number and definiteness, adding to their historical, scientific and educational value. The museum, which is the attractive feature for the general public, includes the Cliff Dweller collection, the flora and fauna of Colorado, pictures, and many of the relics of the early days. In this arrangement President Edward B. Morgan, Secretary Charles R. Dndley, Prof. George L. Cannon, Prof. Ellsworth Bethel, aided the Curator, as also did Dr. W. S. Ward, during the early part of the biennial term.

ETHNOLOGY.

The department of Ethnology, which includes the extensive Cliff Dweller collections from the southwest, contains about 4,000 articles, to which 22 have been specifically added. The Society, in connection with the University of Colorado, purchased a collection of 96 articles from the Cliff Dweller ruins of the southwest, and was also interested with the University in the exploring expedition of Prof. Edgar L. Hewett, in this same region. The articles purchased, and obtained in this expedition, are now stored in the rooms of the Society, but have not been counted in the additions to ethnology, as no division of the same has yet been made between this Society and the University of Colorado. Through the kindly aid of friends, who subscribed \$500 for this purpose, a like sum being paid by the University of Colorado, our Society was enabled to participate in the exploring expedition of Professor Hewett, who is connected with the Archaeological Institute of America. The names of the donors to this fund and the work of the expedition will be given in detail in the reports of Mr. Charles R. Dndley, the Secretary of our Society, and Professor Hewett.

THE HERBARIUM.

The herbarium of the Society, known as the Ellsworth Bethel Botanical Collection, has been increased by 2,006 specimens, making the total now 20,006. This department is in charge of Professor Bethel, whose collection the Society obtained, as shown in the former report of the Curator. In addition to the several thousand flowering plants in the Bethel collection, it is of special value and ranks high among botanists because of the comprehensive lists of cryptogams, especially fungi, also numbering several thousand. At the time the Society secured Professor Bethel's collection he estimated the total at about 12,000. The herbarium of the Society at the time, with

those since obtained, numbers about 8,000, giving a grand total as above named. The botanical department occupies two rooms adjoining that of ethnology, where the specimens are arranged in new cases and cabinets. Professor Bethel is working more to perfect the collection than add to the number of specimens. In his field and laboratory investigations he has found many rare specimens and discovered some new to science. During the biennial term, prominent botanists of the United States have visited this herbarium and consulted with Professor Bethel on some of the more intricate points in this branch of science. He has also identified many specimens for those who called. Professor Bethel also introduced a pleasing feature, during the spring and summer months, in placing in the herbarium, bouquets of wild flowers with labels bearing both the common and scientific names, which was much appreciated by the public and called forth a great deal of favorable comment.

ORNITHOLOGY.

The department of ornithology has been increased by 19 mounted birds, 274 birds' skins, 701 birds' eggs, 8 skulls and the sterna of two swans. This makes the total collection of mounted birds, 447; bird skins (with a few alcoholics), 2,052, which, with a few exceptions, gives a total of 2,499 Colorado birds. There are also 46 tropical birds, which increase the grand total to 2,545. The additions for the biennial term were mostly obtained in field work by Mr. Horace G. Smith, the Museum Assistant and the Curator, but a few specimens were donated. Mrs. L. D. Hayes, Canon City, Colorado, donated a fine collection of birds' eggs, in memory of her son, Albert L. Hayes, who had obtained the same in his work as a young naturalist. They were received through the courtesy of her brother, Mr. Claude A. Dunn, of Denver.

The known list of Colorado birds is being filled rapidly by representative specimens in the museum of the Society. During the past two years, some rare Colorado birds have been added. The records of some of these have already been published in *The Auk*, the recognized journal of ornithology in this country, in a valuable article by our Museum Assistant, Mr. Horace G. Smith. The title of his article was, "Random Notes on the Distribution of Some Colorado Birds, with Additions to the State Avifauna." This article made public some of the more important discoveries, which have been made under the auspices of the society, during the past few years, and contains additional information on 35 species.

Among the more noteworthy species, taken during the biennial period, may be mentioned the Gray Vireo. Specimens, of this species, which were taken by Mr. Horace G. Smith, at La-

mar, Colorado, proved to be the first records for the State. This is a southern species, and Prof. W. W. Cooke, of the Biological Survey, Washington, D. C., writes that "The nearest previous record is in New Mexico, not far from Las Vegas."

A Slate-colored Sparrow was also secured by Mr. Smith, at Sulphur Springs, Grand county, Colorado, July 3, 1908. This is the second record for the county, the first specimen having been taken by Edwin Carter in 1877. Several other records have been made in other portions of the State, but this species is considered a rare one within our borders.

An additional record was made by the Curator, on Harris Sparrow, at Kit Carson, Cheyenne county, October 9, 1907. Also at Kit Carson, he had the good fortune to obtain a specimen of the White-necked Raven, formerly common, but now becoming rare in Colorado. The Curator also secured a specimen of a Cassin Vireo, at Wild Horse, the same county, thus extending its known range to the eastward. Two specimens of the rare Cassin Sparrow, taken by Mr. L. J. Hersey and Mr. R. B. Rockwell, at Barr, Adams county, were kindly donated by them.

To this list may be added the Barn and Pigmy Owls, Baird Woodpecker, Magnolia, Tennessee, and Western Parula Warblers, and other specimens, that have been secured by Mr. Smith, the Curator, and others interested in this department. Data on some of these, together with further information on the breeding of the Canon Wren, Bell Vireo, and Eastern Blue Jay, within our State, will be published later.

MAMMALS.

A fair increase has been made in the list of mammals. The larger ones found in this State are represented in the museum, either entire or by mounted heads, and many of the smaller species by skins and mounted specimens. A good foundation has been made for a check-list of the mammals of the State.

Two species, based on material, in the collection of the society have been added to Warren's "List of the Mammals of Colorado." One is the Western Silvery Mole (*Scolopus aquaticus machrinus*), whose known range has been extended into Northeastern Colorado, having been found by Mr. Smith to be quite common in portions of Yuma county, where a specimen was taken, near the eastern State line, by Mr. H. D. Boyes.

The other species—a variety of rabbit—taken by Mr. Smith in the vicinity of Denver, near Arvada, not only proved to be new to the fauna of the State, but new to science as well, having been recently described by Mr. E. W. Nelson of the Biological Survey of the Department of Agriculture, Washington, D. C., who solicited the use of the material in our museum for comparative purposes. Referring to this species, Mr. Nelson writes:

"The small-eared rabbit from near Arvada, Colorado, proves to belong to a new sub-species, which I described in a recent paper and called *Sylvilagus floridanus similis*. Your capture of this cottontail near Arvada is a great extension of the range of any form of the Eastern cottontail, as it was previously unknown from Colorado. It evidently follows up the Platte river, and its tributaries, but just what its distribution is in Colorado is at present unknown."

FISH, REPTILES AND INVERTEBRATES.

Important additions have been made to the Departments of Fish; Reptiles and Batrachians; Insects; and Marine and Fresh Water Invertebrates. In these branches sufficient work has been accomplished to be of great aid in the preliminary preparation of check-lists of those species to be found in Colorado. Our collection of insects now numbers between 8,000 and 9,000, and the marine and fresh water invertebrates about 7,500.

PALEONTOLOGY.

A portion of a dinosaur was one of the more important additions to the Department of Paleontology, the donor being Mr. Robert C. Duthie of Denver. Prof. George L. Cannon, who has the supervision of this branch of science, has rearranged the specimens, and with new labels, has greatly increased the value and importance of the display of the collection of fossils. Pictures, representing the ancient flora and fauna, have also been placed with some of the specimens, not only increasing the general interest in the same, but adding to the educational feature.

Prof. T. D. A. Cockerell of the University of Colorado, in an interesting and instructive lecture before the Colorado Academy of Science, announced important discoveries he had made in his studies of the fossils of the "Florissant Beds." As our museum has a large collection from that section, Prof. Cockerell made an examination of some of what seemed to be the rarer forms, and discovered some new species for his already valuable list.

The attention of the society was called to the discovery of some large fossil remains in Western Colorado, which should have been added to our museum. Prof. Cannon kindly offered his services, without charge to the society, to secure this gigantic specimen, for the museum, provided the necessary expenses of removing the same could be obtained. But our appropriation was too small to undertake the work. It is unfortunate that most of the valuable fossils of this region find their way to Eastern museums, as our society is without funds to obtain them.

DONORS.

The list of donors would make a long one. The name of each and all is preserved in the records of the society. These

gifts are not only appreciated because of their value, but also as a proof of the interest taken by the public in the growth and success of the society.

NEEDS OF THE SOCIETY.

In a general way the society needs more aid both in an increase in the number of employees and larger appropriations for all purposes.

In a more specific way, some of these needs may be stated as follows:

An historical assistant should be added to the staff to assist the Curator in historical work, the same as he is now aided by a museum assistant in the scientific.

A stenographer is also needed, not only to assist in the general work of the office, but to take the dictations of Colorado pioneers, in giving sketches of their lives, together with saving memorabilia of the principal historical events of our State.

Liberal appropriations are wanted to enable the society to add to its collections, and publish historical and scientific documents.

During the biennial term just closed, there was only an expense account of \$400 per annum. This amount was expended in the general work of the society, on duly approved vouchers filed with the Auditor of State. A little assistance was given by the State Auditing Board for stationery and office supplies.

The Curator wishes to express his thanks to the office staff, the officers and members of the society, and the State officials, for many courtesies and kindly assistance.

Respectfully submitted,

WILLIAM C. FERRIL,

Curator.

The Colorado Academy of Science
OF
The State Historical and Natural History
Society
OF
COLORADO

Biennial Report, December 1, 1906, November 30, 1908

OFFICERS

COLORADO ACADEMY OF SCIENCE

OF

The State Historical and Natural History Society

OF

COLORADO

President.....	Ellsworth Bethel
First Vice President.....	John Parsons
Second Vice President.....	Dr. William Smedley
Secretary and Treasurer.....	William C. Ferril

EXECUTIVE COMMITTEE.

J. Clarence Hersey (Chairman), George L. Cannon (Vice Chairman), Cornelia S. Miles, Alva H. Felger, Cornelius J. Marvin, and ex-officio Ellsworth Bethel and William C. Ferril.

SECTIONS, SUB-SECTIONS AND CHAIRMEN OF EACH.

Astronomy.....	Herbert A. Howe
Botany	Ellsworth Bethel
Phanerogams.....	George E. Osterhout
Cryptogams.....	Ellsworth Bethel
Anthropology and Ethnology.....	Dr. A. L. Bennett
Archaeology.....	A. J. Fynn
Geology.....	George L. Cannon
Paleo-Botany.....	T. D. A. Cockerell
Vertebrate Paleontology.....	George L. Cannon
Invertebrate Paleontology.....	Cornelius J. Marvin
Meteorology and Physical Science.....	Philip Fitch
Microscopy.....	Dr. J. B. Kinley
Mathematics.....	Florian Cajori
Forestry.....	W. G. M. Stone
Nature Study.....	Cornelia S. Miles
Zoology.....	Horace G. Smith
Mammals.....	Edward R. Warren
Ornithology.....	Alva H. Felger
Entomology.....	Clarence P. Gillette
Mollusca.....	Junius Henderson
Reptiles and Batrachians.....	A. E. Beardsley

LETTER OF TRANSMITTAL.

Denver, Colorado, December 1, 1908.

To the President and Directors of The State Historical and
Natural History Society of Colorado.

Gentlemen—I have the honor to transmit herewith the report of the Colorado Academy of Science of The State Historical and Natural History Society of Colorado for the biennial term, December 1, 1906, to November 30, 1908.

Respectfully submitted,

ELLSWORTH BETHEL,

President, Colorado Academy of Science.

REPORT OF THE SECRETARY.

Denver, Colorado, December 1, 1908.

Prof. Ellsworth Bethel, President; and Mr. J. Clarence Hersey (Chairman), Prof. George L. Cannon (Vice Chairman), Prof. Cornelia S. Miles, Prof. Alva H. Felger, Mr. Cornelius J. Marvin, Members of the Executive Committee, Colorado Academy of Science of The State Historical and Natural History Society of Colorado.

Gentlemen and Madam—I have the honor to submit herewith my report as Secretary of the Colorado Academy of Science of The State Historical and Natural History Society of Colorado, for the biennial term December 1, 1906, to November 30, 1908.

HISTORICAL SUMMARY OF THE ACADEMY.

The Colorado Academy of Science, as it is commonly known, is composed of those members of The State Historical and Natural History Society of Colorado who are interested in one or more branches of natural history. The membership being confined to the parent society, it is thus a State institution both in character and influence, and is thereby entitled to the support and aid of the State, in appropriations for scientific work and publications, as it represents the research phase of the scientific investigations by the parent society. It was first organized, in a preliminary way, in 1896, and was originally known as the Department of Natural History of The State Historical and Natural History Society of Colorado; and, as such department, began its first regular work at a meeting held January 29, 1897, in the chambers of the Colorado Supreme Court. At the annual meeting of The State Historical and Natural History Society of Colorado, January 16, 1900, permission was granted to change the name from the Department of Natural History to the Colorado Academy of Science of The State Historical and Natural History Society of Colorado. At a meeting of the Department of Natural History, held January 23, 1900, the new name was adopted, and on February 13, 1900, its first session was held under the auspices of the "Academy." In common use, it is referred to as the "Colorado Academy of Science," representing in its activity and plan of work, the scientific phase of the parent society.

OBJECT OF THE ACADEMY.

The officers and members of the Academy are engaged, more or less, in original research, with the ultimate object of making a general natural history survey of the State, as well as promoting general investigation in all branches of science. The leading educational institutions of the State are also represented in the official and membership list of the Academy, together with others, who are prominently identified in encouraging and fostering scientific interests. While attempting to promote scientific work along all lines, the Academy is also endeavoring to form a nucleus and bring together the scientific spirit of investigation and research, in the public and private educational institutions of the State, and good results have already been obtained. There now seems to be a better feeling of harmony as well as unison in research, among our scientists than ever before in Colorado. Some who have national reputations for the excellence of their work, and are hardly appreciated at home, while others of almost equal merit have only a local influence—all these, it is the object of the Academy to bring together in the higher planes of State work. This is now being accomplished, and the State of Colorado should be willing to publish the papers and investigations of these scientists that are read at the meetings of the Colorado Academy, as is done in other States.

PUBLICATIONS.

The Academy has been strong in its work, except as to publications. Very able addresses have been given and papers read at its sessions, but the public at large has not been benefitted, as the Academy has been without funds to publish the same. These publications are also needed, that those of other scientific organizations may be received in exchange. Those of the past biennial term, as well as those of former years, would have been valuable, not only in assisting teachers in their nature study work in the class room, but also in promoting the broad and general scientific interests of Colorado. An appropriation for this purpose is much needed, and should be made at the coming session of the Legislature.

During the first part of the biennial term the sessions of the Academy were held in the museum of The State Historical and Natural History Society of Colorado. The space in the museum becoming crowded, the Academy for some months has been meeting in the Senate chamber. The Academy, being a State institution, was given permission by the Board of Capitol Managers to thus meet in the Senate chamber, which has increased the attendance and been duly appreciated by all.

LECTURES BEFORE THE ACADEMY.

The following lectures have been delivered or papers read before the Academy during the biennial term just closed:

- The Measurement of Star Velocities—Dr. John C. Shedd, Dean of Westminster University, Denver, Colorado.
- Plant-lice—Prof. C. P. Gillette, State Agricultural College, Fort Collins, Colorado.
- The Cliff Dwellings of Mesa Verde—Prof. A. J. Fynn, Denver, Colorado.
- Aboriginal Textile Fabrics—General U. S. Hollister, Denver, Colorado.
- Forestry and Irrigation—Prof. L. G. Carpenter, State Agricultural College, Fort Collins, Colorado.
- Colorado Forestry—W. G. M. Stone, President Colorado State Forestry Association, Denver, Colorado.
- Pioneer Irrigation and Forestry—Prof. F. J. Stanton, Denver, Colorado.
- Methods of Filtration and Purification of Water for City Supply—George T. Prince, Chief Engineer, Denver Union Water Company.
- Some Features of the Water Supply of Colorado—Prof. L. G. Carpenter, State Agricultural College, Fort Collins, Colorado.
- The Value of Finger Prints as a Proof or Disproof of Identity—Dr. A. L. Bennett, Denver, Colorado.
- The Fossils of the Florissant Beds (illustrated with lantern slides)—Prof. T. D. A. Cockerell, University of Colorado.
- The President's Address—The Status of Biological Research in Colorado—Prof. Ellsworth Bethel, Denver, Colorado.
- The History of the Nature Study Movement in Denver—Prof. George L. Cannon, Denver, Colorado.
- The Flora and Fauna of the Amazon Valley—Prof. W. H. Clifford, Denver, Colorado.
- The Customs and Habits of the Chinese—Dr. John Inglis, Westminster University, Denver, Colorado.
- What the Denver City Park Board Is Doing with Trees—Hon. Jacob Fillius, president of the Park Board.
- Landscape Gardening as Applied to City Lots—W. W. Parce, Boulder, Colorado.
- City (Denver) Planning—Henry Read, Chairman Denver Art Commission.
- Plant Diseases—Prof. F. D. Kern, Indiana Agricultural Experiment Station.
- Geology and Its Relation to Landscape (illustrated with lantern slides)—Junius Henderson, Curator, Museum, University of Colorado.
- Relation of Run-Off to Precipitation—A. L. Fellows, late in charge of the United States Geological Survey of Colorado.

The Application of Evolution to Sociology—Dr. D. E. Phillips, University of Denver.

Mountain Lakes and Their Vegetation (illustrated with lantern slides)—Dr. Francis Ramaley, University of Colorado.

Through Alaskan Waters (illustrated with lantern slides)—Prof. H. V. Kepner, Denver, Colorado.

IMPORTANT FEATURES.

The programmes of the Academy, with its list of prominent speakers, and the subjects considered, are a sufficient guaranty of the importance of the work accomplished. The topics discussed were simple enough in some lectures to have been of practical use in Nature Study in the lower school grades, and others were technical in dealing with the higher phases of scientific research. It is unfortunate, both from an educational standpoint, as well as for the advancement of all scientific investigation in Colorado, that the Academy was without funds with which to publish these valuable papers.

An appropriation is needed for the publication of such lectures, and the results of scientific research by the Academy.

EDUCATIONAL WORK BY THE ACADEMY.

The demand for Nature Study instruction is increasing. The Academy has in its membership lecturers and specialists, who are ready to serve the educational interests of the State, in talks and excursion work. A large number of teachers availed themselves of the opportunity to study the building stones of the State House, with Prof. George L. Cannon as lecture guide, and the trees of the Capitol grounds and the city, with Prof. Ellsworth Bethel. It is the intention of the Academy to make this a special feature.

Prof. George L. Cannon, Prof. Ellsworth Bethel, and other specialists connected with the several departments of the Academy, have rendered valuable assistance to the Orationator and service to the public in scientific talks, and in the information given in identifying specimens of Natural History, as well as data on the resources of the State. They will continue these Nature Study talks and field excursions.

NEED OF NATURE STUDY DOCUMENTS.

The scientific interests of Colorado have been much retarded, in an educational way, at least in the lower grades of school work, because of the absence of abundant literature, on all branches of Natural History, written in non-technical language, in striking contrast to what has been accomplished along this line in some of the other states where there has been liberality in the publication of Nature Study documents. Nearly all of the extensive literature on the Natural History of the Rocky Mountains has been published in technical language, in

rare and costly volumes, and not of easy access to many in Colorado. While a number of praiseworthy efforts have been made to supply this non-technical literature, for educational work, yet more is required to obtain the results needed. Science specialists of the Academy now have ready for publication such documents, if an appropriation may be obtained therefor.

THE FUTURE.

The Academy is preparing for still more active work during the coming biennial term. The programmes will be filled with prominent speakers, and interesting as well as timely topics will be discussed. Meetings of the sections and sub-sections will be arranged, in which the scientists will be grouped more in the lines of their specialties, but all blending their work in the broader field of the general programmes of the Academy.

Respectfully submitted,

WILLIAM C. FERRIL,
Secretary, Colorado Academy of Science.

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